

KONAMI[®]

RACIN[™] ***FORCE[™]***

UP-RIGHT VERSION

OPERATORS GUIDE AND SERVICE MANUAL

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RACIN' FORCE_{TM}

(UP-RIGHT VERSION) ISSUE NO.1

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GAME DESCRIPTION

PLAY INSTRUCTIONS

To start game, insert the required number of coins (or press service switch located inside coin mech. door).

Note:- See page 6 to set cost of games.

After the player inserts correct coinage, you will see the message "WAITING FOR OTHER PLAYERS" for approximately 15 seconds. This is an introduction into the multiple player option, if another player does not enter the correct coinage for a game in the allotted time then a single player game will be played.

The screen will display the four available courses, these are; CIRCUIT COURSE, HIGH SPEED CIRCUIT, ENDURO CIRCUIT and COUNTRY ROAD. To choose a course, turn the steering wheel and when the arrow points to the desired course press the accelerator pedal.

The screen will now show the two transmission options, to choose between **Automatic** and **Manual**, turn the steering wheel to the desired mode then press accelerator pedal. The game will now begin with a count-down at the "Starting Grid".

PLAYING THE GAME

The object is to complete the course in the fastest possible time. A time, in seconds, will be displayed at the top of the screen.

Each time the leading player passes through a checkpoint 'extra time' is awarded, if play time reaches (zero) 0 seconds then the game is over. (See page 5 to set the number of laps and difficulty level). CIRCUIT COURSE, HIGH SPEED CIRCUIT and ENDURO CIRCUIT are normally set to four laps of the circuit, the COUNTRY ROAD game is completed when the players car crosses the finish line within the allotted time. Should the player complete the game within the top five recorded times, "he" may enter a 3 character name (or initials) as a record of achievement. To do this, use the steering wheel to select letters and press accelerator to accept the character.

MULTI-PLAYER GAME

To play in a multi-player game, the players must all start at the same time. Up to 8 machines may be connected, giving a maximum 8 simultaneous players. On the first credit, the machine will display a countdown during which, it will wait for other connected machines to be started. The procedure to start a game is then the same as for a single player. The goal of the multi-player game is to finish faster than all other competitors. If there are fewer than eight players then the remaining cars will be automatically generated as with the single player game. To set the time duration and car colours, see page 5.

HOW TO LINK GAME UNITS

Up to 8 units are linkable for this game. When linking units the DIP SWITCH settings should be adjusted accordingly.

NOTE :- refer to notes on DIP SWITCHES, page 4.

One linking cable should be attached between each pair of units. If you link units, attach the link cable as shown in Diagram.1. Do not leave linking cables un-connected at one end, as this may cause problems with networking the units.

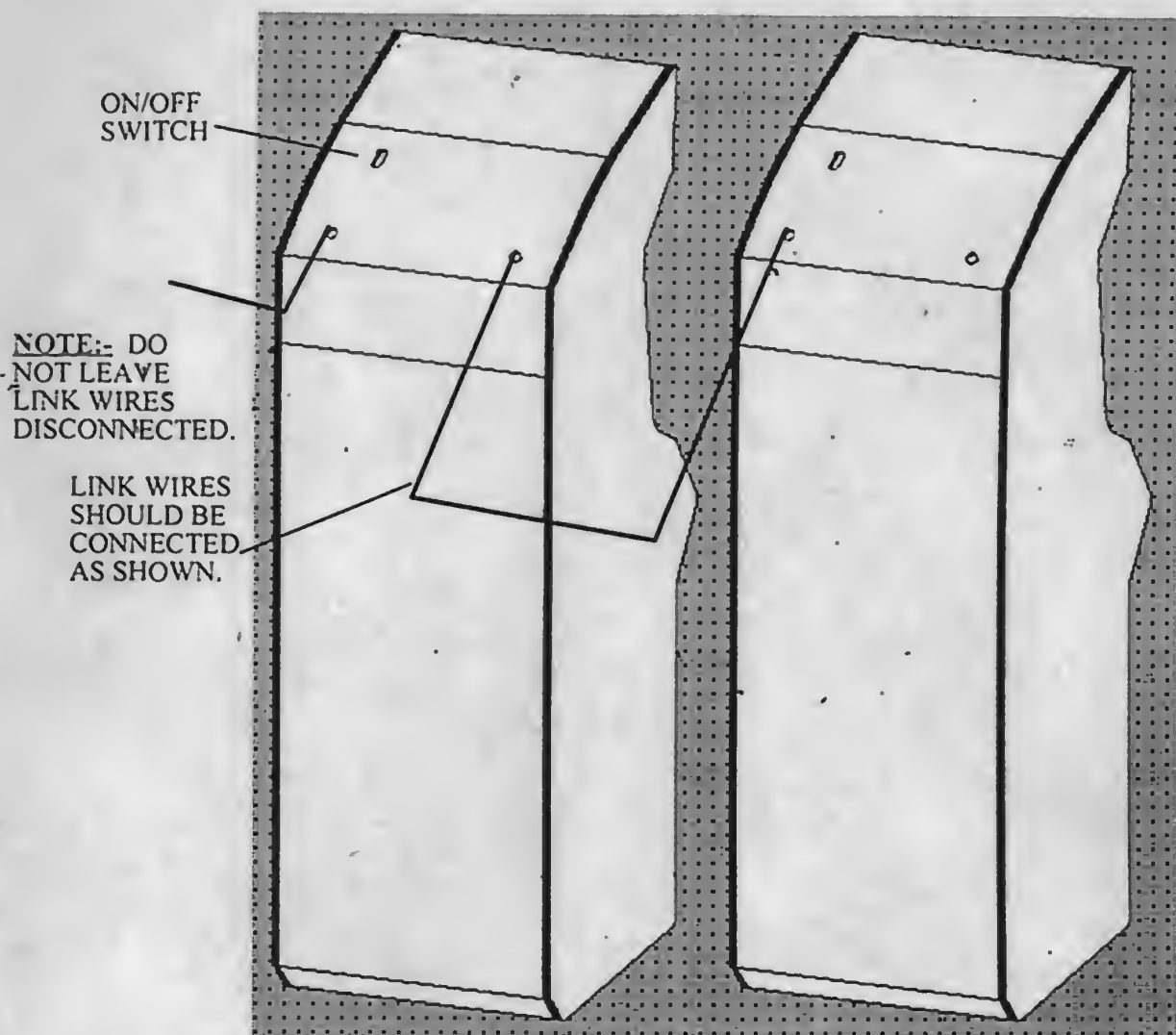


DIAGRAM.1.

TEST MODE OPTIONS

Ensure the unit is in attract mode before beginning test. To enter Test Mode, press the Test button located behind the coin mech. door. The screen will display as shown in FIG.1, "MAIN MENU". (Note- if you "power up" the unit with the test switch pressed, all data set up in the Manual test will return to the ex-factory settings.)

To choose an option, turn the steering wheel, the text will change colour to indicate which instruction line you are on. To pick the option press accelerator pedal.

MAIN MENU		
(i)	I/O CHECK	
(ii)	SCREEN CHECK	
(iii)	COLOUR CHECK	
(iv)	MASK ROM CHECK	
(v)	LAN CHECK	
(vi)	DIP SWITCH SETTINGS	
(vii)	SOUND OPTIONS	14
(viii)	GAME OPTIONS	0804010F
(ix)	COIN OPTIONS	0000
(x)	TOP RANKING DELETION	
(xi)	GAME MODE	

Explanation -

- (i) Check each control switch.
- (ii) Adjustment of screen alignment.
- (iii) Colour adjustment.
- (iv) Check MASK ROM condition.
- (v) Network check
- (vi) Shows Dip Switch state.
- (vii) Sound Effect setting.
- (viii) Game settings, Difficulty level, etc.
- (ix) Coin setting.
- (x) Records of Top Ranking scores are deletable.
- (xi) Return to Game Mode.

FIG.1

To exit from the menu, choose GAME MODE and press accelerator.

(i) I/O CHECK

The screen displays as FIG 2. Choose the I/O CHECK option as described previously.

I/O CHECK	
STEERING	80
00 -----^----- FF	
LEFT NEUTRAL RIGHT	
38-48 78-88 B8-C8	
ACCELERATOR	00
00 -----^----- FF	
MIN MAX	
00-10 58-68	
BRAKE	0
GEAR	LOW (or HIGH)
SERVICE SWITCH	0
COIN MECH SWITCH	0 (When "ON" will show "1")
TEST SWITCH	0
LAMPS ON CABINET	(ON or OFF)
STEP ON BRAKE AND ACCELERATOR TO EXIT	

The steering wheel should normally be between 78 or 88. When turned left, the arrow should show 38 to 48 or, B8 to C8 when fully right. When the accelerator is pressed, the arrow should move from 00-10 to 58-68 when fully pressed. The Brake should show "1" when pressed. Changing gear should display LOW or HIGH depending on the stick position.

FIG.2

NOTE :- Operating the Test, Service or Brake switches should show the relevant switch states (0 or 1). The "Lamps On Cabinet" indicator should change as the lamps go On and Off. To exit, press both the accelerator and brake pedals simultaneously.

(ii) **SCREEN CHECK**

The screen will show a number of squares to help set up the focus, size, position, etc. of the screen. The controls for this are behind the coin mech. door.

Press brake and accelerator to exit.

(iii) **COLOUR CHECK**

The screen shows 16 colours in graduations. To adjust the colour balance, consult the Hantarex monitor manual.

Press brake and accelerator to exit.

(iv) **MASK ROM CHECK**

The pre-programmed ROM I.C's are tested with this function. Good ROMs are shown with 'OK' in white and faulty ROMs with 'BAD' in red.

Press brake and accelerator to exit.

(v) **LAN CHECK**

This option shows how many machines are connected in the network and their respective colours. Note the car colours are set with DIP switches on the logic board. (See below for settings).

(vi) **DIP-SWITCH SETTINGS**

This option shows which Dip Switch settings are chosen.

DIP SWITCH 1		SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
SCREEN	NORMAL			OFF					
	UPSIDE DOWN			ON					
CABINET TYPE	2 IN1			OFF	OFF				
	UPRIGHT(MONO)			ON	OFF				
	UPRIGHT(STEREO)			ON	ON				
CAR NUMBER AND COLOUR	1 (RED)			OFF	OFF				OFF
	2 (BLUE)			ON	OFF	OFF			
	3 (YELLOW)			OFF	ON	OFF			
	4 (GREEN)			ON	ON	OFF			
	5 (RED)			OFF	OFF	ON			
	6 (BLUE)			ON	OFF	ON			
	7 (YELLOW)			OFF	ON	ON			
	8 (GREEN)			ON	ON	ON			


NOTE :- There are two switch banks located on the PCB. Use only switch bank 1.

When 1 to 4 units are linked, set switches 6, 7 and 8 accordingly.

For any changes to Dip Switch settings **switch OFF the machine** before commencing.

(vii) **SOUND OPTIONS**

The following screen will appear when this option is chosen; (FIG.3)

SOUND CHECK	
(a) SOUND IN ATTRACT MODE	ALL THE TIME
(b) VOLUME	04 
(c) SOUND SCALE CHECK	XXXX
(d) SOUND TEST	XXXX
(e) PAN TEST	XXXX
(f) FACTORY SETTINGS	
(g) SAVE AND EXIT	
(h) EXIT	
USE STEERING WHEEL TO CHOOSE - ACCELERATOR TO EXIT	

(a) This option allows the audio volume and attract mode to be set. (Other options are : 'Once every 4 cycles' or 'Not at all'.)

(b) To increase VOLUME (from 00 to 30), press accelerator or to decrease the brake.

(c) This function goes through the notes of the scale (doh, reh, mi, fah, etc.) through each speaker in the following sequence : front left, front right, rear left, rear right.

(d) This function samples various sounds found in the game.

(e) This function tests the stereo sound effects, "panning" through each speaker.

(f) This sets the above settings to the default settings.

(g) This will save the settings and return to the main menu.

(h) This will return to the main menu.

FIG.3.

NOTE :- If exiting via EXIT, if any changes have been made, it will prompt with -
'YOU DID NOT SAVE, DO YOU WANT TO SAVE ?'
Y/N

If you do wish to save the changes choose "Y" with the steering wheel and then pressing accelerator, otherwise select "N".

(viii) **GAME OPTIONS**

This function allows the setting of game variables :

FUNCTION	SETTING OPTIONS	DEFAULT
(a) Difficulty level	1 (easiest), 2 (very easy), 3 (easy), 4 (medium), 5 (medium hard), 6 (hard), 7 (very hard) and 8 (hardest)	Default is 4 medium.
(b) Number of laps	Between 3 and 10.	4.
(c) Speedometer display	MPH or Km/H	MPH.
(d) Game joining period	Between 5 and 20 seconds	15 seconds

(e) Factory settings option will set all options to the default settings.
To save changes, choose 'Save and exit'. To exit without saving, choose 'Exit'.

(Note: 'Exit' will prompt if changes were made, as for Sound Options.)

(TEST MODE OPTIONS - cont'd.)

(ix) COIN OPTIONS

This machine is normally fitted with the MARS ME111 coin mechanism and Credit board, a full description of which may be found on pages 12 & 13. (It is used to pulse coin meters, set game price increments and bonus game options.)

The factory software setting for this machine is 1 coin 1 credit and should not be altered when using the Mars Credit Board as this would cause a conflict.

The software options for the cost per credit are :-

Number of coins	1*	1	1	1	1	1	1	2	2	2	3	3	3	4	4	4
Number of credits	1*	2	3	4	5	6	7	1	3	5	1	2	4	1	3	5

* - Factory settings option will set all options to the default setting of 1 Coin. 1 Credit.

To save changes, choose 'Save and Exit'

To exit without saving, choose 'Exit'.

Note: Exit will prompt if changes were made, as for Sound Options.

(x) TOP RANKING DELETION - The following screen will appear if this option is chosen

TOP RANKING DELETION

DO YOU WANT TO DELETE THE "TOP RANKING" RECORDS ?

YES NO

USE STEERING WHEEL TO CHOOSE
ACCELERATOR TO EXIT

Make a choice using the steering wheel. If you choose "YES" the Top Ranking records currently stored will be erased and the message "FACTORY SETTING OF TOP RANKING" will be displayed.

FIG.4

SELF-TEST MODE

Upon Switch-On, the unit will operate a self-test upon the main Logic board. If the self-test is O.K then the screen display will go into "Attract mode" which indicates it is ready to be played. Otherwise, a list of test results will appear and the test will repeat itself automatically.

If the display shows: "ROM 22D/M BAD" switch Off the mains power via the switch located at the top of the unit, then switch On again with the Test switch ON. This operation will return all settings to the factory preset location.

NETWORK OPERATION

NETWORK SELF-TEST

The following are the points you should pay attention to when you operate this machine by linking more than one unit.

1) NETWORK MANUAL TEST

All the units in the Network should be tested simultaneously.

When you set up the units, please make the network self-test according to the following and check if the network system works well.

Firstly, operate the "LAN CHECK" (page 4) for each separate screen. If the screen displays are as shown in FIG.5 and FIG's.6a & b overleaf, then networking the system is not a problem.

When you link 2 or more units the LAN Check is :-
{SCREEN FOR PLAYER 1}

{SCREEN FOR PLAYER 2}

LAN CHECK	
THIS MACHINE'S CAR NO. - 1 (RED)	
CAR NO.1 (RED)	CHECK OK
CAR NO.2 (BLUE)	CHECK OK
CAR NO.3 (YELLOW)	CHECK OK
CAR NO.4 (GREEN)	CHECK OK
CAR NO.5 (RED)	NOT CONNECTED
CAR NO.6 (BLUE)	NOT CONNECTED
CAR NO.7 (YELLOW)	NOT CONNECTED
CAR NO.8 (GREEN)	NOT CONNECTED
(USE ACCELERATOR OR BRAKE TO EXIT)	

LAN CHECK	
THIS MACHINE'S CAR NO. - 2 (BLUE)	
CAR NO.1 (RED)	CHECK OK
CAR NO.2 (BLUE)	CHECK OK
CAR NO.3 (YELLOW)	CHECK OK
CAR NO.4 (GREEN)	CHECK OK
CAR NO.5 (RED)	NOT CONNECTED
CAR NO.6 (BLUE)	NOT CONNECTED
CAR NO.7 (YELLOW)	NOT CONNECTED
CAR NO.8 (GREEN)	NOT CONNECTED
(USE ACCELERATOR OR BRAKE TO EXIT)	

{SCREEN FOR PLAYER 3}

{SCREEN FOR PLAYER 4}

LAN CHECK	
THIS MACHINE'S CAR NO. - 3 (YELLOW)	
CAR NO.1 (RED)	CHECK OK
CAR NO.2 (BLUE)	CHECK OK
CAR NO.3 (YELLOW)	CHECK OK
CAR NO.4 (GREEN)	CHECK OK
CAR NO.5 (RED)	NOT CONNECTED
CAR NO.6 (BLUE)	NOT CONNECTED
CAR NO.7 (YELLOW)	NOT CONNECTED
CAR NO.8 (GREEN)	NOT CONNECTED
(USE ACCELERATOR OR BRAKE TO EXIT)	

LAN CHECK	
THIS MACHINE'S CAR NO. - 4 (GREEN)	
CAR NO.1 (RED)	CHECK OK
CAR NO.2 (BLUE)	CHECK OK
CAR NO.3 (YELLOW)	CHECK OK
CAR NO.4 (GREEN)	CHECK OK
CAR NO.5 (RED)	NOT CONNECTED
CAR NO.6 (BLUE)	NOT CONNECTED
CAR NO.7 (YELLOW)	NOT CONNECTED
CAR NO.8 (GREEN)	NOT CONNECTED
(USE ACCELERATOR OR BRAKE TO EXIT)	

FIG.5

The colour configuration for each player is as shown in the above tables.

When you link 8 units (maximum) the LAN Check is :-
{SCREEN FOR PLAYER 1}

{SCREEN FOR PLAYER 2}

LAN CHECK	
THIS MACHINE'S CAR NO. - 1 (RED)	
CAR NO.1 (RED)	CHECK OK
CAR NO.2 (BLUE)	CHECK OK
CAR NO.3 (YELLOW)	CHECK OK
CAR NO.4 (GREEN)	CHECK OK
CAR NO.5 (RED)	CHECK OK
CAR NO.6 (BLUE)	CHECK OK
CAR NO.7 (YELLOW)	CHECK OK
CAR NO.8 (GREEN)	CHECK OK
(USE ACCELERATOR OR BRAKE TO EXIT)	

LAN CHECK	
THIS MACHINE'S CAR NO. - 2 (BLUE)	
CAR NO.1 (RED)	CHECK OK
CAR NO.2 (BLUE)	CHECK OK
CAR NO.3 (YELLOW)	CHECK OK
CAR NO.4 (GREEN)	CHECK OK
CAR NO.5 (RED)	CHECK OK
CAR NO.6 (BLUE)	CHECK OK
CAR NO.7 (YELLOW)	CHECK OK
CAR NO.8 (GREEN)	CHECK OK
(USE ACCELERATOR OR BRAKE TO EXIT)	

{SCREEN FOR PLAYER 3}

{SCREEN FOR PLAYER 4}

LAN CHECK	
THIS MACHINE'S CAR NO. - 3 (YELLOW)	
CAR NO.1 (RED)	CHECK OK
CAR NO.2 (BLUE)	CHECK OK
CAR NO.3 (YELLOW)	CHECK OK
CAR NO.4 (GREEN)	CHECK OK
CAR NO.5 (RED)	CHECK OK
CAR NO.6 (BLUE)	CHECK OK
CAR NO.7 (YELLOW)	CHECK OK
CAR NO.8 (GREEN)	CHECK OK
(USE ACCELERATOR OR BRAKE TO EXIT)	

LAN CHECK	
THIS MACHINE'S CAR NO. - 4 (GREEN)	
CAR NO.1 (RED)	CHECK OK
CAR NO.2 (BLUE)	CHECK OK
CAR NO.3 (YELLOW)	CHECK OK
CAR NO.4 (GREEN)	CHECK OK
CAR NO.5 (RED)	CHECK OK
CAR NO.6 (BLUE)	CHECK OK
CAR NO.7 (YELLOW)	CHECK OK
CAR NO.8 (GREEN)	CHECK OK
(USE ACCELERATOR OR BRAKE TO EXIT)	

(FIG.6a)

{SCREEN FOR PLAYER 5}

{SCREEN FOR PLAYER 6}

LAN CHECK	
THIS MACHINE'S CAR NO. - 5 (RED)	
CAR NO.1 (RED)	CHECK OK
CAR NO.2 (BLUE)	CHECK OK
CAR NO.3 (YELLOW)	CHECK OK
CAR NO.4 (GREEN)	CHECK OK
CAR NO.5 (RED)	CHECK OK
CAR NO.6 (BLUE)	CHECK OK
CAR NO.7 (YELLOW)	CHECK OK
CAR NO.8 (GREEN)	CHECK OK
(USE ACCELERATOR OR BRAKE TO EXIT)	

LAN CHECK	
THIS MACHINE'S CAR NO. - 6 (BLUE)	
CAR NO.1 (RED)	CHECK OK
CAR NO.2 (BLUE)	CHECK OK
CAR NO.3 (YELLOW)	CHECK OK
CAR NO.4 (GREEN)	CHECK OK
CAR NO.5 (RED)	CHECK OK
CAR NO.6 (BLUE)	CHECK OK
CAR NO.7 (YELLOW)	CHECK OK
CAR NO.8 (GREEN)	CHECK OK
(USE ACCELERATOR OR BRAKE TO EXIT)	

{SCREEN FOR PLAYER 7}

{SCREEN FOR PLAYER 8}

LAN CHECK	
THIS MACHINE'S CAR NO. - 7 (YELLOW)	
CAR NO.1 (RED)	CHECK OK
CAR NO.2 (BLUE)	CHECK OK
CAR NO.3 (YELLOW)	CHECK OK
CAR NO.4 (GREEN)	CHECK OK
CAR NO.5 (RED)	CHECK OK
CAR NO.6 (BLUE)	CHECK OK
CAR NO.7 (YELLOW)	CHECK OK
CAR NO.8 (GREEN)	CHECK OK
(USE ACCELERATOR OR BRAKE TO EXIT)	

LAN CHECK	
THIS MACHINE'S CAR NO. - 8 (GREEN)	
CAR NO.1 (RED)	CHECK OK
CAR NO.2 (BLUE)	CHECK OK
CAR NO.3 (YELLOW)	CHECK OK
CAR NO.4 (GREEN)	CHECK OK
CAR NO.5 (RED)	CHECK OK
CAR NO.6 (BLUE)	CHECK OK
CAR NO.7 (YELLOW)	CHECK OK
NO.8 (GREEN)	CHECK OK
(USE ACCELERATOR OR BRAKE TO EXIT)	

(Fig .6.b)

The colour configuration for each player is as shown in the above tables.

"CHECK OK" should be displayed in Green and the cursor "]" should scan each line moving from left to right with an unchanging cycle. Check that this is shown on each screen for at least one minute. To Exit LAN Check press the accelerator or brake pedal , this will return you to the "MAIN MENU".

FAULT DIAGNOSIS

(WHEN NETWORK SYSTEM DOES NOT WORK)

(1) When the screen does not appear as shown in FIG's 4 & 5 or, when a red "ERROR" message shows continuously instead of "CHECK OK", then there is a possibility of a network system fault. However, the "ERROR" message is sometimes displayed due to electrical noise at the instant of checking, in this case there is not a fault with the network.

(2) If following Switch-On the screen displays the error message "NETWORK ERROR", check that the Dip-Switches for that unit are set correctly.

(3) Please use the following check points when a fault is found with the network system;

(3.1) Switch OFF the power via the ON / OFF switch at the top of the machine and check that the "link" cable is connected correctly and is not contaminated or dusty.

(3.2) Check that there are no unconnected or surplus link leads attached to a unit in the network system. (as shown on page 2.)

(3.3) Ensure that the link leads supplied are in good order and not damaged in any way. Damaged leads should always be replaced (Cable spec. 75Ohm. 3C-2V the length should be less than 2 metres.)

(4) If you see either of the following screens following switch on, check the unit accordingly;

NETWORK ERROR 1

NETWORK ERROR

CHECK MACHINE PLAYER
NUMBERS IN THE NETWORK OR
CHECK NETWORK CABLES.

THIS MACHINE'S NO. 1 (RED)

(FIG.7a)

NETWORK ERROR 2

NETWORK ERROR

CALL ATTENDANT

(FIG.7b)

Fig.7a - Check that the DIP switch setting is correct to the corresponding Game unit as shown on page 4, "Dip Switch Settings".

Fig.7b - If while playing the game within a network a Link cable is disconnected or damaged or if any of the units involved in the network enters the Manual Test Mode, this screen will appear.

Firstly, check that all the other units involved in the network are in the Attract mode before entering the Manual Test operation. Should the Manual Test fail to correct the error you should then carry out check (3), shown above.

SPARE PARTS REQUIREMENT

Please note - Spare parts should be ordered through your supplier, use only these specified parts

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1)	10083	MONITOR POLO 25" HANTAREX
2)	242060	SCREEN GLASS
3)	541097	VAC FORM PANEL
4)	202362	PLAY PANEL CHAIN
5)	39053	GEAR STICK ASSEMBLY
6)	14023	HANTAREX POWER SUPPLY UNIT
7)	39050	STEERING ASSEMBLY
8)	16161	MAINS CABLE (IEC IN)
9)	50157	ME111 MECH. FRONT REJECT (GGBL5L00B/E2 UK ONLY)
10)	50381	CREDIT BOARD (MARS 109645001)
11)	39052	BRAKE ASSEMBLY
12)	39051	ACCELERATOR ASSEMBLY
13)	242021	'A' PANEL, RACIN' FORCE UPRIGHT
14)	45A020	DOUBLE POLE ROCKER SWITCH
15)	161740	UNIT LINKING CABLE 1.2 METRE
16)	81008	FLUORESCENT TUBE 18" 15W
17)	81044	STARTER, PGS22/FS2/H2X
18)	81003	CHOKE, 20W
19)	56034	SPEAKER 4 Ohm 30W
20)	50005	METER 6V D.C (WITH DIODE)

CREDIT BOARD SETTINGS

This machine is fitted with a MARS ME111 coin mech and a MARS credit board. Settings are as follows (NOTE THE FOLLOWING SETTINGS ARE FOR THE UK ONLY. FOR OTHER COUNTRIES A CREDIT BOARD INFORMATION SHEET WILL BE PUT LOOSE IN THIS MANUAL).

COIN ENABLE
On = Accept coin
Off = Reject coin

Coin	F	E	D	C	B
Value	£1	50p	20p	10p	

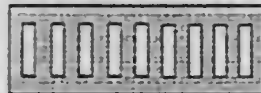
GAME PRICE INCREMENT & METER PULSING

10p

LINKS				
	LINKS REMOVED			
	LINK FITTED			
5	4	3	2	1
0	0	0	0	0

GAME PRICE SETTING

123456789



NOTE ; Power unit down before changing switch settings -

GAME PRICE	SWITCH ^{1= ON} _{0= OFF}				BONUS GAME AWARDED AT:	
	1	2	3	4	LEVEL 1	LEVEL 2
10p	0	0	0	0	50P	£1
20p	1	0	0	0		
30p	0	1	0	0		
40p	1	1	0	0		
50p	0	0	1	0	£1	£2
60p	1	0	1	0		
70p	0	1	1	0		
80p	1	1	1	0		
90p	0	0	0	1	£2	£5
£1.00	1	0	0	1		
£1.10	0	1	0	1		
£1.20	1	1	0	1		
£1.30	0	0	1	1		
£1.40	1	0	1	1		
£1.50	0	1	1	1		
£1.60	1	1	1	1		

THE PRICE OF GAMES IS CONTROLLED BY SWITCHES 1 TO 4.

NOTE : Additional information can be found on Page 13.

CREDIT BOARD SETTINGS

Page 13- Additional information.

BONUS GAME SWITCH SETTINGS

BONUS LEVEL 1 -

LEVEL 1	1 = ON	0 = OFF
NO. OF BONUS GAMES AWARDED	SW5	SW6
0	0	0
1	1	0
2	0	1
3	1	1

BONUS LEVEL 2 -

LEVEL 2	1 = ON	0 = OFF	
NO. OF BONUS GAMES AWARDED	SW7	SW8	SW9
0	0	0	0
1	1	0	0
2	0	1	0
3	1	1	0
4	0	0	1
5	1	0	1
6	0	1	1
7	1	1	1

NOTE - Value at which BONUS GAMES are awarded is dependant upon Game Price Settings.

OUTLINE SPECIFICATION FOR MARS ELECTRONICS, INTERNATIONAL CREDIT BOARD

Supply Voltage MAX 15v MIN 10v. MAX Current Consumed 200mA.

Game Output npn transistor switching to 0v.
Sink current > 100mA @ max. 0.5v
100mS pulse with 200mS Min. gap (timing +/- 20% over 0 to 40C temperature range)

Machine Interface connector

The board is fitted with a 0.2" pitch MOLEX compatible connector.

PIN NO.	Description
1	0v supply input
2	12v supply input
3	0v output
4	Game output
5	12v output
6	Meter output
7	12v output
8	Lamp output

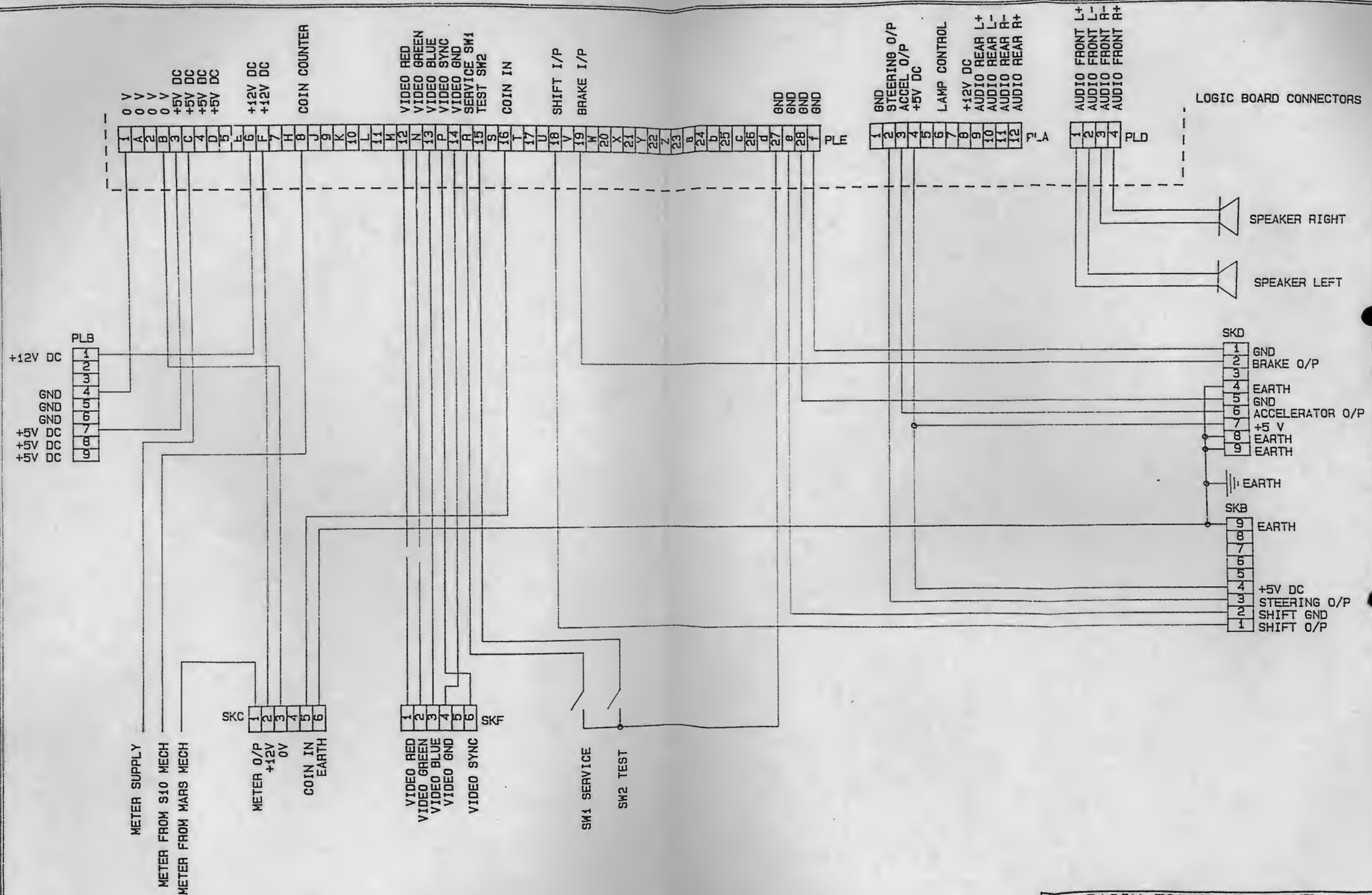
WIRE LIST (please note wire lists are subject to change at any time without prior arrangement. Check with your supplier for correct revision.)

PART NO :- 161780

TITLE - MAIN LOOM "RACIN' FORCE" (U/R)

24/2/94

WIRE No	FROM	TO	COLOUR	FUNCTION	WIRE SIZE
1	PLE-1	PLB-4	BLK	0V	24/0.2
2	PLE-3	PLB-7	PNK	+5V	24/0.2
3	PLE-6	PLB-1	ORG	+12V	24/0.2
4	PLE-C	MTR-1	PNK/BLU	+5V MTR	13/0.2
5	SKC-1	MTR-2	YEL/BRN	O/P TO MTR	13/0.2
6	PLE-F	SKC-2	ORG / BLK	+12V	13/0.2
7	PLE-B	SKC-3	BLK / ORG	0V	13/0.2
8	PLE-12	SKF-1	RED	VIDEO RED	13/0.2
9	PLE-N	SKF-2	GRN	VIDEO GRN	13/0.2
10	PLE-13	SKF-3	BLU	VIDEO BLU	13/0.2
11	PLE-P	SKF-6	WHT	VIDEO SYNC	13/0.2
12	PLE-14	SKF-4	BLK / BLU	VIDEO GND	13/0.2
13	PLE-R	SW2-1	YEL/ORG	SERVICE SW	13/0.2
14	PLE-15	SW1-1	YEL/BLK	TEST SW	13/0.2
15	PLE-16	SKC-5	WHT / GRN	COIN IN (CCN)	13/0.2
16	PLE-18	SKB-1	YEL / BLU	SHIFT RTN	13/0.2
17	PLE-19	SKD-2	YEL / VIO	BRAKE RTN	13/0.2
18	PLE-e	SKB-2	BLK / BRN	SHIFT GND	13/0.2
19	PLE-f	SKD-1	BLK / RED	BRAKE GND	13/0.2
20	PLE-27	SW1-2	BLK / YEL	GND	13/0.2
21	SW1-2	SW2-2	BLK / YEL	GND	13/0.2
22	PLA-2	SKB-3	BLU / ORG	STEERING O/P	13/0.2
23	PLA-3	SKD-6	BLU / RED	ACC. O/P	13/0.2
24	PLA-4	SKB-4	PNK / BRN	+5V	13/0.2
25	SKB-4	SKD-7	PNK / RED	+5V	13/0.2
26	PLC-1	LS1-2	GRY/BLK	AUDIO FRT LHS +	13/0.2
27	PLC-2	LS1-1	GRN / BLK	AUDIO FRT LHS -	13/0.2
28	PLC-3	LS2-1	GRN / RED	AUDIO FRT RHS -	13/0.2
29	PLC-4	LS2-2	GRY/RED	AUDIO FRT RHS +	13/0.2
30	not used			not used	
31	PLE-28	SKD-5	BLK	ACC. GND	13/0.2
32	E1	SKD-8	GYN/YEL	EARTH	32/0.2
33	E1	SKC-6	GRN / YEL	EARTH	32/0.2
34	E1	SKD-4	GRN / YEL	EARTH	32/0.2
35	E1	SKD-9	GRN / YEL	EARTH	32/0.2
36	E1	SKB-9	GRN/YEL	EARTH	32/0.2
37	E1	E2	GRN / YEL	EARTH	32/0.2
38	PLE-1	PLE-A	TCW		
39	PLE-2	PLE-B	TCW		
40	PLE-3	PLE-C	TCW		
41	PLE-4	PLE-D	TCW		
42	PLE-6	PLE-F	TCW		
43	CM3	CM1		COMMS OUT	AUDIO CABLE
44	CM4	CM2		COMMS OUT	AUDIO CABLE
45	PLE-8	MTR	GRY/ORG	METER S10	13/0.2



TITLE RACIN FORCE UP-RIGHT
SCHEMATIC

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